

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
10 July 2003 (10.07.2003)

PCT

(10) International Publication Number
WO 03/056411 A1(51) International Patent Classification⁷: G06F 1/16Hanyang sujung APT, Gwanneum-dong, Buk-gu, 702-755
Daegu (KR).

(21) International Application Number: PCT/KR02/01431

(22) International Filing Date: 27 July 2002 (27.07.2002)

(25) Filing Language: English

(26) Publication Language: English

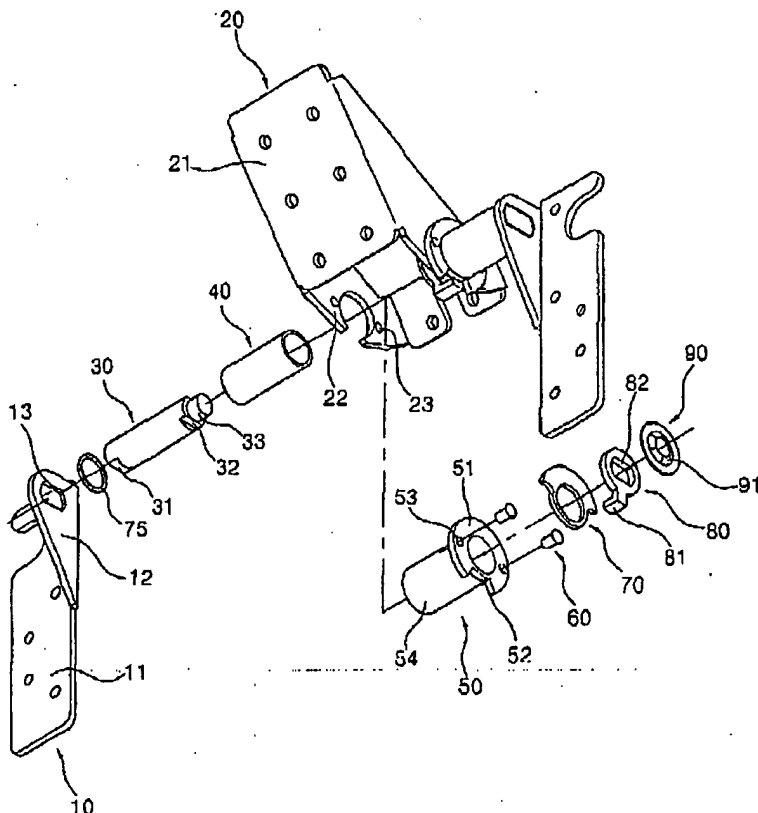
(30) Priority Data:
2001/85858 27 December 2001 (27.12.2001) KR(71) Applicant (for all designated States except US): LG
ELECTRONICS, INC. [KR/KR]; 20, Yoido-dong,
Youngdungpo-gu, 150-875 Seoul (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LEE, Gang-Hoon
[KR/KR]; 203-1004 Poongrim APT, Hyunggok 1-dong,
730-777 Gumi (KR). KIM, Hong-Ki [KR/KR]; 216-402(74) Agent: HAW, Yong-Nok; 8th Fl. Songchon Bldg. 642-15
Yoksam-dong, Kangnam-ku, 135-080 Seoul (KR).(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GI,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK,
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZM, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK,

[Continued on next page]

(54) Title: HINGE STRUCTURE FOR FLAT VISUAL DISPLAY DEVICE



(57) Abstract: Disclosed is a hinge structure for a flat visual display device. The hinge structure comprises: a fixed plate and pivotal plates respectively fastened to the flat visual display device and a supporting portion for straightening the flat visual display device; rotation shafts with first ends placed in the side of the fixed plate and second ends placed in the side of the pivotal plates, the first or second ends being fixed to allow relative rotational movement between the fixed and pivotal plates; braking members provided around the rotation shafts for applying braking force; and braking housings provided around the braking members and with first fixed ends opposite to the fixed ends of the rotation shaft for applying braking force to faces contacting with the braking members.

WO 03/056411 A1

WO 03/056411 A1



TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/01431**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 G06F 1/16**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06F 1/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KOREAN PATENTS AND APPLICATIONS FOR INVENTIONS SINCE 1975

KOREAN UTILITY MODELS AND APPLICATIONS FOR UTILITY MODELS SINCE 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI,PAJ, "hinge&brak*&friction&shaft "

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5598607 A(Santo Industries Co., Ltd.) 04. Feb., 1997 * Figure 5, Figure 6	1,8,18
A	US 5682645 A(Koichi Watabe, Yoshioaki Watabe) 04. Nov., 1997 * Figure 3-9	1,8,18
A	US 5406678 A(General Clutch Corporation) 18. Apr., 1995 * The whole document	1,8,18
A	US 5008976 A(Dell Corporate services Corporation) 23. Apr., 1991 * The whole document	1,8,18

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

18 NOVEMBER 2002 (18.11.2002)

Date of mailing of the international search report

18 NOVEMBER 2002 (18.11.2002)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

IHM, In Kwon

Telephone No. 82-42-481-5712

